Report No.: 8003-061
Work Assignment No.: 019-2JZZ
Contract No.: 68-W9-0051
July 27, 1994
Rev. No. 1

164773

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9/6/94
RPR

Joseph Hudek, Pre-Remedial WAM
U.S. Environmental Protection Agency
Environmental Services Division - Region II
Edison, New Jersey 08837

RE: Castle Creek Fabrics (a.k.a. Northern Dyeing Corporation) Hazard Ranking System Screening /SIP

Dear Mr. Hudek:

This letter summarizes the results of the Hazard Ranking System (HRS) screening conducted for the Castle Creek Fabrics Site, EPA I.D. No. NJD981562622 located on Brass Castle Road, Washington Township and Washington Borough, Warren County, New Jersey. This screening was conducted to assess the site's potential for inclusion onto the National Priorities List (NPL). The screening was primarily based upon information gathered from a New Jersey Department of Environmental Protection (NJDEP) Site Inspection (SI) report for the Castle Creek Fabrics Site and from a 1994 on-site reconnaissance.

Castle Creek Fabrics is an active site located on a 7.87-acre lot in a residential/commercial area. It is bordered by farmland to the east, Brass Castle Road to the west, a business to the south, and the Pohatcong Creek to the northwest. Notable on-site features include a lagoon on the northern portion of the property, a building on the northwest corner of the property, and several buildings on the southern portion of the property. The majority of the site is paved with the exception of the north and northwest corner of the property. At the present time, several of the on-site buildings are leased to various tenants.

From 1946 to the present, the site has been operated as a cloth dyeing and fabrics finishing company. During the dyeing and finishing processes, wastewater was generated. This wastewater, which included discarded dye, finishing wastes, washwater, and domestic wastes, contained numerous hazardous by-products including heavy metals. From 1946 to 1962, Castle Creek Fabrics discharged the wastewater to the Borough of Washington sewer system. Due to the wastewater causing discoloration problems of the final effluent at the Washington treatment plant, Castle Creek Fabrics began to treat their wastewater. Four earthen basins were located on the northern portion of the Castle Creek property and these basins were used as treatment units for the wastewater. In 1971 an additional treatment unit was added when a 550,000-gallon concrete-lined raw waste/equalization basin was constructed north of the existing lagoons. From 1962 to the 1970s, the treated wastewater was then discharged directly to the Pohatcong Creek. The sludge was disposed of on farmland located west of Asbury's Anderson Road. The treatment the wastewater underwent consisted of chemical flocculation and dissolved air flotation within the primary clarifiers, biological treatment within an aeration basin, chemical flocculation within a secondary clarifier, and chlorination within a chlorine contact tank. An SI Report by the NJDEP indicates that an outfall is located in the Pohatcong Creek, east of the 550,000-gallon lagoon. No other information is available in the file regarding the location of this outfall. In addition, there is no information indicating whether or not this was the only outfall in use at the facility. Currently, the four earthen basins have been filled in, and they are located underneath a sand and gravel parking lot. There is no documentation available which indicates whether or not the basins were cleaned out prior to being backfilled. The 550,000-gallon lagoon is no longer in use; however, it has not been filled in. Currently, the site is connected to the Borough of Washington sewer system.

An on-site reconnaissance of Castle Creek Fabrics was conducted by a field team representing the USEPA on July 19, 1994. During this reconnaissance, the 550,000-gallon lagoon was observed to contain several

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inches of water. The sides of the lagoon, which were lined with concrete, rose approximately six feet above the water level. Therefore, it did not appear likely that the lagoon would overflow. In addition, no apparent drainage pathways from the lagoon to the Pohatcong Creek could be located. Therefore, it seems probable that water collected in the lagoon either remains there or evaporates. The Pohatcong Creek was also inspected during this reconnaissance in order to locate the known outfall and any other outfalls which may have been utilized by the facility; however, neither the known outfall nor any other outfalls could be found.

A NJDEP SI Report was completed for the Castle Creek Fabrics Site in 1991. During the SI, eleven samples were collected including seven soil samples and four sediment samples. Six of the soil samples were collected near the sand and gravel parking lot where the four filled-in earthen basins are located, and the seventh soil sample was collected from the northwestern portion of the property. Although a background soil sample was not collected in conjunction with this sampling event, the soil sample collected furthest upslope (S6) is considered a biased background sample. Since this sample was collected at a depth of nine feet, this sample is only comparable to soil sample S4 (ten feet in depth). All the remaining samples were collected at depths of less than 4.5 feet. Therefore, a background sample does not exist for them. One of the sediment samples (SED4) was collected from the 550,000-gallon lagoon, and the remaining sediment samples (SED1-3) were collected from the Pohatcong Creek. Two sediment samples (SED2 and SED3) were collected upstream of the outfall located by the NJDEP. Both samples are adjacent to the 550,000-gallon lagoon. The third sediment sample (SED1) was collected downstream of the outfall, slightly upstream of Brass Castle Road. Although SED2 and SED3 were collected adjacent to the lagoon, no drainage pathways were found during the 1994 on-site reconnaissance from the lagoon to the creek. Therefore, since these samples were collected upstream of the outfall, they are considered upstream samples. All samples were analyzed for Target Analyte List (TAL) inorganic contaminants and Target Compound List (TCL) organic compounds. Analysis of the soil samples indicated the presence of copper (131,000 ppb) and nickel (26,600 ppb) in the deep attribution sample (S4) at elevated levels when compared to the levels detected in the deep biased background sample (S6). These same contaminants were detected in the shallow attribution soil samples. Analysis of the sediment samples indicated the presence of chromium (347,000 ppb), copper (3,331,000 ppb), and bis(2-ethylhexyl)phthalate (190,000 ppb) in the lagoon sediment sample (SED4). These samples were analyzed through the NJDEP program, and are CLP-equivalent.

The overall HRS score for the Castle Creek Fabrics Site is 24.65. The following are the pathway descriptions which result in the determination of the site score, primarily generated from the groundwater migration pathway.

<u>Groundwater Pathway</u>

The groundwater pathway score is 49.18. Three geologic units are located within a four mile radius of the site. The uppermost unit consists of glacial deposits that contain loamy sands and gravels. This strata is approximately 50 feet thick. The hydraulic conductivity is approximately 1 X $10^{-4}$ centimeters per second (cm/s). A belt of mountains run from west to east south of the site. North of these mountains the Kittatiny Formation underlies the glacial deposits. This is a karst aquifer consisting of limestone. Many large channels and caverns have been identified in this formation. The hydraulic conductivity of this aquifer is approximately 1 X $10^{-2}$ cm/s. In the area where the mountains are located, Losee Gneiss and Biram Gneiss underlies the glacial deposits. These are both quartzite formations whose hydraulic conductivity is estimated to be 1 X $10^{-4}$ cm/s. The depth to groundwater is approximately 11 feet, and groundwater flow direction in the vicinity of the site is to the west towards the Pohatcong Creek.

The 1991 NJDEP SI report indicates that a release of contaminants from the site to groundwater has been observed. The observed release was based on the detection of tetrachloroethylene and trichloroethylene in a public supply well owned by the New Jersey American Water Company (NJAWC). This well is located approximately 0.3 miles northwest of the site. Neither contaminant detected in the well was detected in the on-site soil samples or in the lagoon sediment sample. In addition, no documentation is available which

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indicates that tetrachloroethylene or trichloroethylene were used at the site. As neither contaminant was detected in the on-site waste sources, attribution is not possible. Therefore, a release of contaminants from the site to groundwater has not been documented.

Groundwater is used extensively as a source of drinking water within four miles of the site. Three public supply wells from various water departments have been identified within a four mile radius of the site. All of the wells draw from the Kittatiny Formation at depths of approximately 300 feet. In addition, numerous residents within four miles of the site also obtain their drinking water from private wells. The private wells are located in either the Losee Gneiss or the Biram Gneiss. The nearest well is owned by the NJAWC and it is located approximately 1.1 miles east (upgradient) of the site. The total service population of public wells within four miles of the site is 11,618 people (0-0.25 mile, 0; 0.25-0.5 mile, 0; 0.5-1 mile, 0; 1-2 mile, 11,118; 2-3 mile, 0; 3-4, 500). The total service population of private wells within four miles of the site is 2,394 people (0-0.25 mile, 0; 0.25-0.5 mile, 0; 0.5-1 mile, 0; 1-2 mile, 0; 2-3 mile, 463; 3-4, 1,931). The proximity of the site to a wellhead protection area cannot be determined since wellhead protection areas are not yet delineated in the State of New Jersey.

**Surface Water Pathway**

The surface water pathway score is 3.27. The Pohatcong Creek runs along the northwest border of the site. From 1962 to the 1970s, treated wastewater from the manufacturing process was discharged to this creek. The Pohatcong Creek flows southwest at approximately 49 cubic feet per second (cfs) through several towns to the 15-mile target distance limit. The site is located in a 100-year floodplain.

During the 1991 SI, three sediment samples were collected from the Pohatcong Creek. Two sediment samples (SED2 and SED3) were collected upstream of the outfall located by the NJDEP. This outfall could not be located during the 1994 USEPA site reconnaissance. Both samples are adjacent to the 550,000-gallon lagoon. The third sediment sample (SED1) was collected downstream of the outfall, slightly upstream of Brass Castle Road. Although SED2 and SED3 were collected adjacent to the lagoon, no drainage pathways were found during the 1994 on-site reconnaissance from the lagoon to the creek. Therefore, since these samples were collected upstream of the outfall, they are considered background samples. Analysis of the downstream sample did not indicate the presence of contaminants at elevated levels when compared to the upstream samples.

There are no potable water intakes along the 15-mile surface water pathway. The Pohatcong Creek is a freshwater fishery, and the creek is stocked by the NJDEP with brown trout, brook trout, and rainbow trout. Two miles of wetland frontage are located along the creek. The Pohatcong Creek is a NJDEP designated Freshwater (FW2) waterbody. Designated uses of such a waterbody include the maintenance, migration, and propagation of the natural and established biota and public potable water supply after suitable treatment. A habitat for a state threatened species is located along the surface water pathway.

**Soil Exposure Pathway**

The score for the soil exposure pathway is 1.08. During the 1991 SI, seven on-site soil samples and one on-site sediment sample were collected. Six of the soil samples were collected near the sand and gravel parking lot where the four filled-in earthen basins are located, and the seventh soil sample was collected from the northwestern portion of the property. All of the soil samples were collected at depths of two feet or greater. Therefore, they cannot be utilized when evaluating the soil pathway. The sediment sample was collected from the 550,000-gallon lagoon. Analysis of the sediment sample indicated the presence of chromium (347,000 ppb), copper (3,331,000 ppb), and bis(2-ethylhexyl)phthalate (190,000 ppb). No residences, schools, day care facilities, or terrestrial sensitive environments have been identified on or within 200 feet of the site property. The site is currently active and it is estimated that there are less than 100 workers on the site property.

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**Air Pathway**

The score for the air pathway is 0.47. No sampling of air media is known to have occurred at the Castle Creek Fabrics Site or in the vicinity of the Castle Creek Fabrics property. A total population of 15,902 people reside within four miles of the Castle Creek Fabrics Site (0-¼ mile, 93; ¼-½ mile, 218; ½-1 mile, 3,966; 1-2 miles, 5,716; 2-3 miles, 1,711; and 3-4 miles, 4,198). There is approximately 317 acres of wetlands within a four mile radius of the site (0-¼ mile, 10; ¼-½ mile, 0; ½-1 mile, 15; 1-2 miles, 87; 2-3 miles, 90; and 3-4 miles, 115). A cornfield is located adjacent to the site.

**Site Summary and Recommendation**

The HRS score for the site is 24.65. A release of contaminants from the site to groundwater cannot be documented. During the 1991 SI, sediment samples were collected from the Pohatcong Creek. Two of the samples were collected adjacent to the on-site lagoon; however, during an on-site reconnaissance no drainage pathway from the lagoon to the locations of these samples was located. Therefore, these samples are considered upstream samples (since they are located above an outfall), and an observed release of contaminants from the site to surface water cannot be documented. There are no residences, schools, or day care facilities within 200 feet of the site. A release of contaminants from the site to air has not been documented.

The above information supports a recommendation of **NO FURTHER REMEDIAL ACTION PLANNED (NFRAP)** for the Castle Creek Fabrics Site. The following is the definition of a NFRAP: To the best of the EPA's knowledge, Superfund has completed its assessment at this site, and has determined that no further steps to list this site on the NPL will be taken unless information indicating that this decision was not appropriate or other considerations make a recommendation for listing appropriate at a later time. A "NFRAP" decision does not necessarily mean that there is no hazard associated with a given site; it means only that based upon available information, the location is not judged to be a potential NPL site.

Sincerely,

Lisa Greco
LISA GRECO
SITE MANAGER

John L. Splendore
JOHN L. SPLENDORE, P.E.
WORK ASSIGNMENT MANAGER

Steven T. McNulty
STEVEN T. MCNULTY
TASK LEADER

| MALCOLM PIRNIE, INC. | PROJECT NOTES |
|---|---|

| To: File | Date: January 26, 1993 |
|---|---|
| From: Lisa Szegedi | Project #: 8003-061 |
| Subject: Groundwater Populations | Site Name: Castle Creek Fabrics |

The following towns are located within 4 miles of the site: Washington Township, Washington Borough, Franklin Township, Hampton Borough, Harmony Township, Oxford Township, and Mansfield Township. They are listed below along with their sources of drinking water.

1) **Washington Township, Washington Borough, and Franklin Township**-All these towns obtain their drinking water from 2 wells owned by the N.J. American Water Company. Both wells are located in the 1-2 mile ring, and they serve approximately 11,118 people. Both wells are located in the Kittatiny Formation.

2) **Hampton Borough**-Hampton Borough obtains their drinking water from 1 public supply well. The well is located in the 3-4 mile ring and serves approximately 500 people. The well taps the Kittatiny Formation.

3) **Harmony Township, Oxford Township, and Mansfield Township**-All of these towns obtain their drinking water from private wells located in gneiss formations. A house count was performed for each of these townships, and the number of houses was multiplied by the average population per household in Warren County (2.66). The calculations are shown below:

| | |
|---|---|
| 2-3 mile ring | 174 houses X 2.66 = 463 people |
| 3-4 mile ring | 726 houses X 2.66 = 1,931 people |

Kittatiny Aquifer Summary

| | |
|---|---|
| 0-1/4 mile ring | 0 people |
| 1/4-1/2 mile ring | 0 people |
| 1/2-1 mile ring | 0 people |
| 1-2 mile ring | 11,118 people |
| 2-3 mile ring | 0 people |
| 3-4 mile ring | 500 people |

Gneiss Aquifers Summary

| | |
|---|---|
| 0-1/4 mile ring | 0 people |
| 1/4-1/2 mile ring | 0 people |
| 1/2-1 mile ring | 0 people |
| 1-2 mile ring | 0 people |
| 2-3 mile ring | 463 people |
| 3-4 mile ring | 1,931 people |

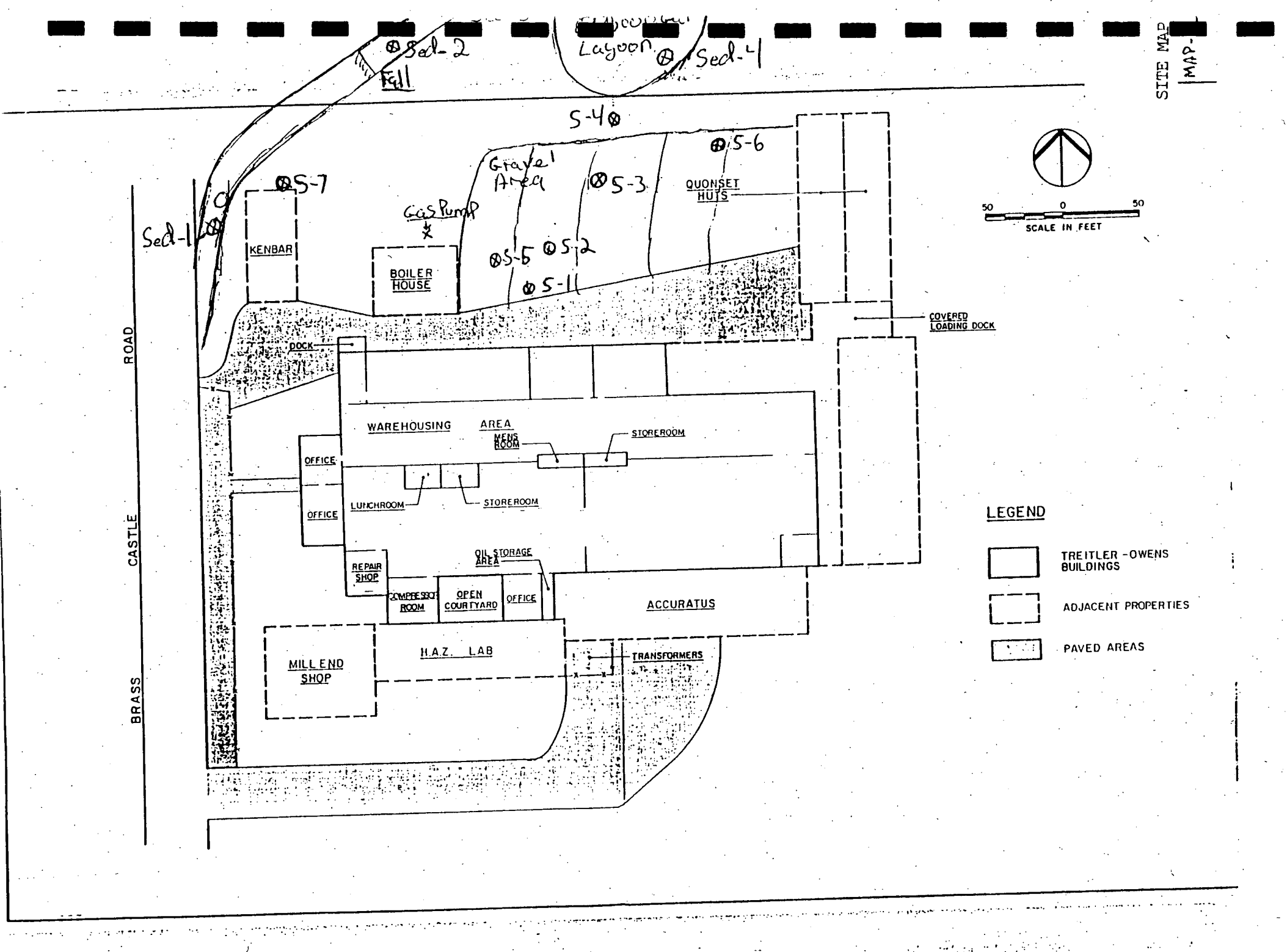
| MALCOLM PIRNIE, INC. | PROJECT NOTES |
|---|---|

| | |
|---|---|
| **To:** File | **Date:** January 26, 1993 |
| **From:** Lisa Szegedi | **Project #:** 8003-061 |
| **Subject:** Waste Sources | **Site Name:** Castle Creek Fabrics |

Two waste sources have been identified for the Castle Creeks Fabrics Site. They are the following:

1) Based on the results of soil samples collected during the 1991 site inspection, an area of greater than zero square feet of soil contaminated with copper (131,000 ppb) and nickel (26,600 ppb) was identified.

2) A 550,000 gallon (2,750 cubic yards) lagoon is on-site. The lagoon received wastewater which included discarded dye, finishing wastes, wash-water, and domestic wastes. Analysis of a sediment sample collected from the lagoon during the 1991 site inspection indicated the presence of chromium (347,000 ppb), copper (3,331,000 ppb), and bis(2-Ethylhexyl)phthalate (190,000 ppb).


SITE MAP
MAP-1
Sed-2
Fill
Lagoon
Sed-4
S-4
S-6
Gravel Area
S-7
S-3
QUONSET HUTS
Sed-1
Gas Pump
KENBAR
BOILER HOUSE
S-5
S-2
S-1
COVERED LOADING DOCK
DOCK
ROAD
CASTLE
BRASS
WAREHOUSING AREA
MENS ROOM
STOREROOM
OFFICE
OFFICE
LUNCHROOM
STOREROOM
OIL STORAGE AREA
REPAIR SHOP
COMPRESSOR ROOM
OPEN COURTYARD
OFFICE
ACCURATUS
MILL END SHOP
H.A.Z. LAB
TRANSFORMERS
50
0
50
SCALE IN FEET
LEGEND
TREITLER-OWENS BUILDINGS
ADJACENT PROPERTIES
PAVED AREAS

HRS DOCUMENTATION RECORD
CASTLE CREEK FABRICS - 08/23/94

1. Site Name: CASTLE CREEK FABRICS
   (as entered in CERCLIS)

2. Site CERCLIS Number: NJD981562622

3. Site Reviewer: LISA GRECO

4. Date: JULY 28, 1994

5. Site Location: WASHINGTON TWP. AND BORO./WARREN COUNTY, NEW JERSEY
   (City/County,State)

6. Congressional District:

7. Site Coordinates: Single

   Latitude: 40 45'21.0" Longitude: 074 59'53.0"

| | Score |
|---|---|
| Ground Water Migration Pathway Score (Sgw) | 49.18 |
| Surface Water Migration Pathway Score (Ssw) | 3.27 |
| Soil Exposure Pathway Score (Ss) | 1.08 |
| Air Migration Pathway Score (Sa) | 0.47 |

| | |
|---|---|
| Site Score | 24.65 |

NOTE

EPA uses the terms "facility," "site," and "release" interchangeably. The term "facility" is broadly defined in CERCLA to include any area where hazardous substances have "come to be located" (CERCLA Section 109(9)), and the listing process is not intended to define or reflect boundaries of such facilities or releases. Site names, and references to specific parcels or properties, are provided for general identification purposes only. Knowledge regarding the extent of sites will be refined as more information is developed during the RI/FS and even during implementation of the remedy.

1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: CONTAMINATED SOIL

| | |
|---|---|
| a. Wastestream ID | |
| b. Hazardous Constituent Quantity (C) (lbs.) | 0.00 |
| c. Data Complete? | NO |
| d. Hazardous Wastestream Quantity (W) (lbs.) | 0.00 |
| e. Data Complete? | NO |
| f. Wastestream Quantity Value (W/5,000) | 0.00E+00 |

2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

| | |
|---|---|
| a. Source ID | CONTAMINATED SOIL |
| b. Source Type | Contaminated Soil |
| c. Secondary Source Type | N.A. |
| d. Source Vol.(yd3/gal) \| Source Area (ft2) | 0.00 \| 0.10 |
| e. Source Volume/Area Value | 2.94E-06 |
| f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b) | 0.00E+00 |
| g. Data Complete? | NO |
| h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f) | 0.00E+00 |
| i. Data Complete? | NO |
| k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h) | 2.94E-06 |

| Source Hazardous Substances | Depth (feet) | Liquid | Concent. | Units |
|---|---|---|---|---|
| Copper | > 2 | NO | 1.3E+02 | ppm |
| Nickel | > 2 | NO | 2.7E+01 | ppm |

1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: LAGOON

| | |
|---|---|
| a. Wastestream ID | |
| b. Hazardous Constituent Quantity (C) (lbs.) | 0.00 |
| c. Data Complete? | NO |
| d. Hazardous Wastestream Quantity (W) (lbs.) | 0.00 |
| e. Data Complete? | NO |
| f. Wastestream Quantity Value (W/5,000) | 0.00E+00 |

2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

| | |
|---|---|
| a. Source ID | LAGOON |
| b. Source Type | Surface Impoundment |
| c. Secondary Source Type | N.A. |
| d. Source Vol.(yd3/gal)\| Source Area (ft2) | 2750.00 \| 91667.00 |
| e. Source Volume/Area Value | 1.10E+03 |
| f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b) | 0.00E+00 |
| g. Data Complete? | NO |
| h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f) | 0.00E+00 |
| i. Data Complete? | NO |
| k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h) | 1.10E+03 |

| Source Hazardous Substances | Depth (feet) | Liquid | Concent. | Units |
|---|---|---|---|---|
| Bis (2-ethylhexyl) phthalate | < 2 | NO | 1.9E+02 | ppm |
| Chromium | < 2 | NO | 3.5E+02 | ppm |
| Copper | < 2 | NO | 3.3E+03 | ppm |

3. SITE HAZARDOUS WASTE QUANTITY SUMMARY

| No. | Source ID | Migration Pathways | Vol. or Area Value (2e) | Constituent or Wastestream Value (2f,2h) | Hazardous Waste Qty. Value (2k) |
|---|---|---|---|---|---|
| 1 | CONTAMINATED SOIL | GW-SW-A | 2.94E-06 | 0.00E+00 | 2.94E-06 |
| 2 | LAGOON | GW-SW-SE-A | 1.10E+03 | 0.00E+00 | 1.10E+03 |

4. PATHWAY HAZARDOUS WASTE QUANTITY AND WASTE CHARACTERISTICS SUMMARY TABLE

| Migration Pathway | Contaminant Values | | HWQVs* | WCVs** |
|---|---|---|---|---|
| Ground Water | Toxicity/Mobility | 1.00E+02 | 100 | 10 |
| SW: Overland Flow, DW | Tox./Persistence | 1.00E+04 | 100 | 32 |
| SW: Overland Flow, HFC | Tox./Persis./Bioacc. | 5.00E+06 | 100 | 100 |
| SW: Overland Flow, Env | Etox./Persis./Bioacc. | 5.00E+07 | 100 | 180 |
| SW: GW to SW, DW | Tox./Persistence | 1.00E+02 | 100 | 10 |
| SW: GW to SW, HFC | Tox./Persis./Bioacc. | 5.00E+02 | 100 | 10 |
| SW: GW to SW, Env | Etox./Persis./Bioacc. | 5.00E+04 | 100 | 32 |
| Soil Exposure:Resident | Toxicity | 1.00E+04 | 100 | 32 |
| Soil Exposure: Nearby | Toxicity | 1.00E+04 | 100 | 32 |
| Air | Toxicity/Mobility | 2.00E+00 | 100 | 3 |

* Hazardous Waste Quantity Factor Values
** Waste Characteristics Factor Category Values

Note: SW = Surface Water
GW = Ground Water
DW = Drinking Water Threat
HFC = Human Food Chain Threat
Env = Environmental Threat

GROUND WATER MIGRATION PATHWAY SCORESHEET
CASTLE CREEK FABRICS - 08/23/94

| GROUND WATER MIGRATION PATHWAY Factor Categories & Factors | Maximum Value | Value Assigned |
|---|---|---|
| Likelihood of Release to an Aquifer Aquifer: BEDROCK | | |
| 1. Observed Release | 550 | 0 |
| 2. Potential to Release | | |
| 2a. Containment | 10 | 10 |
| 2b. Net Precipitation | 10 | 6 |
| 2c. Depth to Aquifer | 5 | 3 |
| 2d. Travel Time | 35 | 25 |
| 2e. Potential to Release [lines 2a(2b+2c+2d)] | 500 | 340 |
| 3. Likelihood of Release | 550 | 460 |
| Waste Characteristics | | |
| 4. Toxicity/Mobility | * | 1.00E+02 |
| 5. Hazardous Waste Quantity | * | 100 |
| 6. Waste Characteristics | 100 | 10 |
| Targets | | |
| 7. Nearest Well | 50 | 3.00E+00 |
| 8. Population | | |
| 8a. Level I Concentrations | ** | 0.00E+00 |
| 8b. Level II Concentrations | ** | 0.00E+00 |
| 8c. Potential Contamination | ** | 2.00E+01 |
| 8d. Population (lines 8a+8b+8c) | ** | 2.00E+01 |
| 9. Resources | 5 | 0.00E+00 |
| 10. Wellhead Protection Area | 20 | 0.00E+00 |
| 11. Targets (lines 7+8d+9+10) | ** | 2.30E+01 |
| 12. Targets (including overlaying aquifers) | ** | 8.82E+02 |
| 13. Aquifer Score | 100 | 49.18 |
| GROUND WATER MIGRATION PATHWAY SCORE (Sgw) | 100 | 49.18 |

* Maximum value applies to waste characteristics category.
** Maximum value not applicable.

GROUND WATER PATHWAY AQUIFER SUMMARY
CASTLE CREEK FABRICS - 08/23/94

| No. | Aquifer ID | Type | Overlaying No. | Inter-Connected with | Likelihood of Release | Targets |
|---|---|---|---|---|---|---|
| 1 | UNCONSOLIDATED DEPOS | Non K | 0 | 0 | 460 | 0.00E+00 |
| 2 | KITTATINNY FORMATION | Karst | 1 | 1 | 460 | 8.62E+02 |
| 3 | BEDROCK | Non K | 0 | 2 | 460 | 8.82E+02 |

Containment

| No. | Source ID | HWQ Value | Containment Value |
|---|---|---|---|
| 1 | CONTAMINATED SOIL | 2.94E-06 | 10 |
| 2 | LAGOON | 1.10E+03 | 10 |
| | Containment Factor | | 10 |

Net Precipitation

| | |
|---|---|
| Net Precipitation (inches) | N.A. |

GROUND WATER PATHWAY LIKELIHOOD OF RELEASE UNCONSOLIDATED DEPOSITS AQUIFER
CASTLE CREEK FABRICS - 08/23/94

Aquifer: UNCONSOLIDATED DEPOSITS

Type of Aquifer: Non Karst

Overlaying Aquifer: 0

Interconnected with: 0

OBSERVED RELEASE

| No. | Well ID | Well Type | Distance (miles) | Level of Contamination |
|---|---|---|---|---|

- N/A and/or data not specified

Observed Release Factor 0

POTENTIAL TO RELEASE

| | | |
|---|---|---|
| **Containment** | | |
| Containment Factor | 10 | |
| **Net Precipitation** | | |
| Net Precipitation Factor | 6 | |
| **Depth to Aquifer** | | |
| A. Depth of Hazardous Substances | 10.00 | feet |
| B. Depth to Aquifer from Surface | 11.00 | feet |
| C. Depth to Aquifer (B - A) | 1.00 | feet |
| Depth to Aquifer Factor | 5 | |
| **Travel Time** | | |
| Are All Layers Karst? | NO | |
| Thickness of Layer(s) with Lowest Conductivity | 1.00 | feet |
| Hydraulic Conductivity (cm/sec) | 1.0E-04 | |
| Travel Time Factor | 35 | |
| Potential to Release Factor | 460 | |

GROUND WATER PATHWAY LIKELIHOOD OF RELEASE KITTATINNY FORMATION AQUIFER
CASTLE CREEK FABRICS - 08/23/94

Aquifer: KITTATINNY FORMATION

Type of Aquifer: Karst

Overlaying Aquifer: 1

Interconnected with: 1

OBSERVED RELEASE

| No. | Well ID | Well Type | Distance (miles) | Level of Contamination |
|---|---|---|---|---|

- N/A and/or data not specified

Observed Release Factor 0

POTENTIAL TO RELEASE

| | | |
|---|---|---|
| **Containment** | | |
| Containment Factor | 10 | |
| **Net Precipitation** | | |
| Net Precipitation Factor | 6 | |
| **Depth to Aquifer** | | |
| A. Depth of Hazardous Substances | 10.00 | feet |
| B. Depth to Aquifer from Surface | 50.00 | feet |
| C. Depth to Aquifer (B - A) | 40.00 | feet |
| Depth to Aquifer Factor | 3 | |
| **Travel Time** | | |
| Are All Layers Karst? | NO | |
| Thickness of Layer(s) with Lowest Conductivity | 40.00 | feet |
| Hydraulic Conductivity (cm/sec) | 1.0E-04 | |
| Travel Time Factor | 25 | |
| Potential to Release Factor | 340 | |

GROUND WATER PATHWAY LIKELIHOOD OF RELEASE BEDROCK AQUIFER
CASTLE CREEK FABRICS - 08/23/94

Aquifer: BEDROCK

Type of Aquifer: Non Karst

Overlaying Aquifer: 0

Interconnected with: 2

OBSERVED RELEASE

| No. | Well ID | Well Type | Distance (miles) | Level of Contamination |
|---|---|---|---|---|

- N/A and/or data not specified

| | |
|---|---|
| Observed Release Factor | 0 |

POTENTIAL TO RELEASE

Containment

| | | |
|---|---|---|
| Containment Factor | 10 | |

Net Precipitation

| | | |
|---|---|---|
| Net Precipitation Factor | 6 | |

Depth to Aquifer

| | | |
|---|---|---|
| A. Depth of Hazardous Substances | 10.00 | feet |
| B. Depth to Aquifer from Surface | 50.00 | feet |
| C. Depth to Aquifer (B - A) | 40.00 | feet |
| Depth to Aquifer Factor | 3 | |

Travel Time

| | | |
|---|---|---|
| Are All Layers Karst? | NO | |
| Thickness of Layer(s) with Lowest Conductivity | 40.00 | feet |
| Hydraulic Conductivity (cm/sec) | 1.0E-04 | |
| Travel Time Factor | 25 | |

| | |
|---|---|
| Potential to Release Factor | 340 |

Source: 1 CONTAMINATED SOIL

Source Hazardous Waste Quantity Value: 0.00

| Hazardous Substance | Toxicity Value | Mobility Value | Toxicity/ Mobility Value |
|---|---|---|---|
| Copper | 100 | 1.00E-02 | 1.00E+00 |
| Nickel | 100 | 2.00E-05 | 2.00E-03 |

Source: 2 LAGOON

Source Hazardous Waste Quantity Value: 1100.00

| Hazardous Substance | Toxicity Value | Mobility Value | Toxicity/ Mobility Value |
|---|---|---|---|
| Bis (2-ethylhexyl) phthalate | 100 | 2.00E-07 | 2.00E-05 |
| Chromium | 10000 | 1.00E-02 | 1.00E+02 |
| Copper | 100 | 1.00E-02 | 1.00E+00 |

Hazardous Substances Found in an Observed Release

| Well No. | Observed Release Hazardous Substance | Toxicity Value | Mobility Value | Toxicity/ Mobility Value |
|---|---|---|---|---|

- N/A and/or data not specified

| | |
|---|---|
| Toxicity/Mobility Value from Source Hazardous Substances: | 1.00E+02 |
| Toxicity/Mobility Value from Observed Release Hazardous Substances: | 0.00E+00 |
| Toxicity/Mobility Factor: | 1.00E+02 |
| Sum of Source Hazardous Waste Quantity Values: | 1.10E+03 |
| Hazardous Waste Quantity Factor: | 100 |
| Waste Characteristics Factor Category: | 10 |

Population by Well

| No. | Well ID | Sample Type | Distance (miles) | Level of Contamination | Population |
|---|---|---|---|---|---|

- N/A and/or data not specified

Level I Population Factor: 0.00

Level II Population Factor: 0.00

## Potential Contamination by Distance Category

| Distance Category (miles) | Population | Value |
|---|---|---|
| > 0 to 1/4 | 0.0 | 0.00E+00 |
| > 1/4 to 1/2 | 0.0 | 0.00E+00 |
| > 1/2 to 1 | 0.0 | 0.00E+00 |
| > 1 to 2 | 0.0 | 0.00E+00 |
| > 2 to 3 | 0.0 | 0.00E+00 |
| > 3 to 4 | 0.0 | 0.00E+00 |

Potential Contamination Factor: 0.000

## Nearest Well

Level of Contamination: N.A.

Nearest Well Factor: 0.00E+00

## Resources

Resource Use: NO

Resource Factor: 0.00E+00

## Wellhead Protection Area

No wellhead protection area

Wellhead Protection Area Factor: 0.00E+00

Population by Well

| No. | Well ID | Sample Type | Distance (miles) | Level of Contamination | Population |
|---|---|---|---|---|---|

- N/A and/or data not specified

Level I Population Factor: 0.00

Level II Population Factor: 0.00

## Potential Contamination by Distance Category

| Distance Category (miles) | Population | Value |
|---|---|---|
| > 0 to 1/4 | 0.0 | 0.00E+00 |
| > 1/4 to 1/2 | 0.0 | 0.00E+00 |
| > 1/2 to 1 | 0.0 | 0.00E+00 |
| > 1 to 2 | 11118.0 | 8.16E+02 |
| > 2 to 3 | 0.0 | 0.00E+00 |
| > 3 to 4 | 500.0 | 2.61E+01 |

Potential Contamination Factor: 842.000

## Nearest Well

Level of Contamination: Potential
Distance in miles: 1.10

Nearest Well Factor: 2.00E+01

## Resources

Resource Use: NO

Resource Factor: 0.00E+00

## Wellhead Protection Area

No wellhead protection area

Wellhead Protection Area Factor: 0.00E+00

Population by Well

| No. | Well ID | Sample Type | Distance (miles) | Level of Contamination | Population |
|---|---|---|---|---|---|

- N/A and/or data not specified

Level I Population Factor: 0.00

Level II Population Factor: 0.00

## Potential Contamination by Distance Category

| Distance Category (miles) | Population | Value |
|---|---|---|
| > 0 to 1/4 | 0.0 | 0.00E+00 |
| > 1/4 to 1/2 | 0.0 | 0.00E+00 |
| > 1/2 to 1 | 0.0 | 0.00E+00 |
| > 1 to 2 | 0.0 | 0.00E+00 |
| > 2 to 3 | 463.0 | 6.80E+00 |
| > 3 to 4 | 1931.0 | 1.31E+01 |

Potential Contamination Factor: 20.000

## Nearest Well

Level of Contamination: Potential
Distance in miles: 2.10

Nearest Well Factor: 3.00E+00

## Resources

Resource Use: NO

Resource Factor: 0.00E+00

## Wellhead Protection Area

No wellhead protection area

Wellhead Protection Area Factor: 0.00E+00

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET
CASTLE CREEK FABRICS - 08/23/94

| SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT<br>Factor Categories & Factors<br>DRINKING WATER THREAT | Maximum Value | Value Assigned |
|---|---|---|
| **Likelihood of Release** | | |
| 1. Observed Release | 550 | 0 |
| 2. Potential to Release by Overland Flow | | |
| 2a. Containment | 10 | 10 |
| 2b. Runoff | 25 | 1 |
| 2c. Distance to Surface Water | 25 | 25 |
| 2d. Potential to Release by Overland Flow [lines 2a(2b+2c)] | 500 | 260 |
| 3. Potential to Release by Flood | | |
| 3a. Containment (Flood) | 10 | 10 |
| 3b. Flood Frequency | 50 | 25 |
| 3c. Potential to Release by Flood (lines 3a x 3b) | 500 | 250 |
| 4. Potential to Release (lines 2d+3c) | 500 | 500 |
| 5. Likelihood of Release | 550 | 500 |
| **Waste Characteristics** | | |
| 6. Toxicity/Persistence | * | 1.00E+04 |
| 7. Hazardous Waste Quantity | * | 100 |
| 8. Waste Characteristics | 100 | 32 |
| **Targets** | | |
| 9. Nearest Intake | 50 | 0.00E+00 |
| 10. Population | | |
| 10a. Level I Concentrations | ** | 0.00E+00 |
| 10b. Level II Concentrations | ** | 0.00E+00 |
| 10c. Potential Contamination | ** | 0.00E+00 |
| 10d. Population (lines 10a+10b+10c) | ** | 0.00E+00 |
| 11. Resources | 5 | 5.00E+00 |
| 12. Targets (lines 9+10d+11) | ** | 5.00E+00 |
| 13. DRINKING WATER THREAT SCORE | 100 | 0.97 |

* Maximum value applies to waste characteristics category.
** Maximum value not applicable.

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET
CASTLE CREEK FABRICS - 08/23/94

| SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT<br>Factor Categories & Factors<br>HUMAN FOOD CHAIN THREAT | Maximum Value | Value Assigned |
|---|---|---|
| Likelihood of Release | | |
| 14. Likelihood of Release (same as line 5) | 550 | 500 |
| Waste Characteristics | | |
| 15. Toxicity/Persistence/Bioaccumulation | * | 5.00E+06 |
| 16. Hazardous Waste Quantity | * | 100 |
| 17. Waste Characteristics | 1000 | 100 |
| Targets | | |
| 18. Food Chain Individual | 50 | 2.00E+00 |
| 19. Population | | |
| 19a. Level I Concentrations | ** | 0.00E+00 |
| 19b. Level II Concentrations | ** | 0.00E+00 |
| 19c. Pot. Human Food Chain Contamination | ** | 3.00E-04 |
| 19d. Population (lines 19a+19b+19c) | ** | 3.00E-04 |
| 20. Targets (lines 18+19d) | ** | 2.00E+00 |
| 21. HUMAN FOOD CHAIN THREAT SCORE | 100 | 1.21 |

* Maximum value applies to waste characteristics category.
** Maximum value not applicable.

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET
CASTLE CREEK FABRICS - 08/23/94

| SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT<br>Factor Categories & Factors<br>ENVIRONMENTAL THREAT | Maximum Value | Value Assigned |
|---|---|---|
| Likelihood of Release | | |
| 22. Likelihood of Release (same as line 5) | 550 | 500 |
| Waste Characteristics | | |
| 23. Ecosystem Toxicity/Persistence/Bioacc. | * | 5.00E+07 |
| 24. Hazardous Waste Quantity | * | 100 |
| 25. Waste Characteristics | 1000 | 180 |
| Targets | | |
| 26. Sensitive Environments | | |
| 26a. Level I Concentrations | ** | 0.00E+00 |
| 26b. Level II Concentrations | ** | 0.00E+00 |
| 26c. Potential Contamination | ** | 1.00E+00 |
| 26d. Sensitive Environments (lines 26a+26b+26c) | ** | 1.00E+00 |
| 27. Targets (line 26d) | ** | 1.00E+00 |
| 28. ENVIRONMENTAL THREAT SCORE | 60 | 1.09 |
| 29. WATERSHED SCORE | 100 | 3.27 |
| 30. SW: OVERLAND/FLOOD COMPONENT SCORE (Sof) | 100 | 3.27 |

* Maximum value applies to waste characteristics category.
** Maximum value not applicable.

SOIL EXPOSURE PATHWAY SCORESHEET
CASTLE CREEK FABRICS - 08/23/94

| SOIL EXPOSURE PATHWAY<br>Factor Categories & Factors<br>RESIDENT POPULATION THREAT | Maximum Value | Value Assigned |
|---|---|---|
| Likelihood of Exposure | | |
| 1. Likelihood of Exposure | 550 | 550 |
| Waste Characteristics | | |
| 2. Toxicity | * | 1.00E+04 |
| 3. Hazardous Waste Quantity | * | 100 |
| 4. Waste Characteristics | 100 | 32 |
| Targets | | |
| 5. Resident Individual | 50 | 0.00E+00 |
| 6. Resident Population | | |
| 6a. Level I Concentrations | ** | 0.00E+00 |
| 6b. Level II Concentrations | ** | 0.00E+00 |
| 6c. Resident Population (lines 6a+6b) | ** | 0.00E+00 |
| 7. Workers | 15 | 5.00E+00 |
| 8. Resources | 5 | 0.00E+00 |
| 9. Terrestrial Sensitive Environments | *** | 0.00E+00 |
| 10. Targets (lines 5+6c+7+8+9) | ** | 5.00E+00 |
| 11. RESIDENT POPULATION THREAT SCORE | ** | 8.80E+04 |

* Maximum value applies to waste characteristics category.
** Maximum value not applicable.
*** No specific maximum value applies, see HRS for details.

SOIL EXPOSURE PATHWAY SCORESHEET
CASTLE CREEK FABRICS - 08/23/94

| SOIL EXPOSURE PATHWAY Factor Categories & Factors NEARBY POPULATION THREAT | Maximum Value | Value Assigned |
|---|---|---|
| Likelihood of Exposure | | |
| 12. Attractiveness/Accessibility | 100 | 1.00E+01 |
| 13. Area of Contamination | 100 | 2.00E+01 |
| 14. Likelihood of Exposure | 500 | 5.00E+00 |
| Waste Characteristics | | |
| 15. Toxicity | * | 1.00E+04 |
| 16. Hazardous Waste Quantity | * | 100 |
| 17. Waste Characteristics | 100 | 32 |
| Targets | | |
| 18. Nearby Individual | 1 | 1.00E+00 |
| 19. Population Within 1 Mile | ** | 4.00E+00 |
| 20. Targets (lines 18+19) | ** | 5.00E+00 |
| 21. NEARBY POPULATION THREAT SCORE | ** | 8.00E+02 |
| SOIL EXPOSURE PATHWAY SCORE (Ss) | 100 | 1.08 |

* Maximum value applies to waste characteristics category.
** Maximum value not applicable.

AIR PATHWAY SCORESHEET
CASTLE CREEK FABRICS - 08/23/94

| AIR MIGRATION PATHWAY Factor Categories & Factors | Maximum Value | Value Assigned |
|---|---|---|
| **Likelihood of Release** | | |
| 1. Observed Release | 550 | 0 |
| 2. Potential to Release | | |
| 2a. Gas Potential to Release | 500 | 250 |
| 2b. Particulate Potential to Release | 500 | 280 |
| 2c. Potential to Release | 500 | 280 |
| 3. Likelihood of Release | 550 | 280 |
| **Waste Characteristics** | | |
| 4. Toxicity/Mobility | * | 2.00E+00 |
| 5. Hazardous Waste Quantity | * | 100 |
| 6. Waste Characteristics | 100 | 3 |
| **Targets** | | |
| 7. Nearest Individual | 50 | 2.00E+01 |
| 8. Population | | |
| 8a. Level I Concentrations | ** | 0.00E+00 |
| 8b. Level II Concentrations | ** | 0.00E+00 |
| 8c. Potential Contamination | ** | 2.00E+01 |
| 8d. Population (lines 8a+8b+8c) | ** | 2.00E+01 |
| 9. Resources | 5 | 5.00E+00 |
| 10. Sensitive Environments | | |
| 10a. Actual Contamination | *** | 0.00E+00 |
| 10b. Potential Contamination | *** | 7.38E-01 |
| 10c. Sens. Environments(lines 10a+10b) | *** | 7.38E-01 |
| 11. Targets (lines 7+8d+9+10c) | ** | 4.57E+01 |
| AIR MIGRATION PATHWAY SCORE (Sa) | 100 | 4.66E-01 |

* Maximum value applies to waste characteristics category.
** Maximum value not applicable.
*** No specific maximum value applies, see HRS for details.